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10/720,897

11/21/2003

Kamakshi Sridhar

139151USNP

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EXAMINER

DUONG, FRANK

ART UNIT

PAPER NUMBER

2616

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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|------------------------------|--------------------------------------|---------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/720,897 | <b>Applicant(s)</b><br>SRIDHAR ET AL. |  |
|                              | <b>Examiner</b><br>Frank Duong       | <b>Art Unit</b><br>2616               |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,6,8 and 14-20 is/are rejected.
- 7) ☒ Claim(s) 2-5,7,9-13,21 and 22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This Office Action is a response to communications dated 11/21/03. Claims 1-27 are pending in the application.

#### ***Information Disclosure Statement***

2. The information disclosure statements filed 11/21/03 and 10/07/04 comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609. They have been considered and placed in the application file.

#### ***Drawings***

3. Figure 1a should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Specification***

4. The disclosure is objected to because of the following informalities:

Page 9, starting in first paragraph and thereafter, the term "LSP<sub>2A4</sub>" and "M<sub>2A4</sub>" should be changed to --LSP<sub>1A3</sub>-- and --M<sub>1A3</sub>-- to better reflect the elements depicted in Fig. 1b.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 6, 8 and 14-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Zelig et al (Patent Application Publication 2004/0037279) (hereinafter "Zelig").

Regarding **claim 1**, in accordance with Zelig reference entirety, Zelig shows a centralized node (*Fig. 2; Multicast-capable router and paragraphs [0050]-[0051]*) for coupling into a computer network (*Fig. 1 and paragraphs [0048]-[0049]*) along which network traffic flows between a plurality of nodes in a form of packets (*see Fig. 1 for connection details*), programmed to perform the steps of:

identifying requirements of unicast packet traffic (point-to-point) along the network, wherein the unicast packet traffic identifies a first traffic configuration (point-to-point) along the network (*point-to-point pseudo wires are discussed at paragraph [0049]*)

or [0054] and thereafter); and

constructing a second traffic configuration (point-to-multipoint) along the network, differing from the first traffic configuration (point-to-point), wherein the second traffic configuration (point-to-multipoint) is for routing multicast packet traffic along the network (*point-to-multipoint (multicast) configuration is discussed at paragraph [0051] or [0055] and thereafter*).

Regarding **claim 6**, in addition to features recited in base claim 1 (see rationales discussed above), Zelig also discloses wherein the step of constructing a second traffic configuration comprises constructing a Steiner tree (spanning tree) along the network (paragraph [0049]).

Regarding **claim 8**, in addition to features recited in base claim 6 (see rationales discussed above), Zelig also discloses wherein the step of constructing a second traffic configuration further comprises supplementing the Steiner tree (spanning tree) along the network by constructing one or more source based trees (group of point-to-point G1 or group of all connections G2) along the network (paragraphs [0056]-[0057]).

Regarding **claim 14**, in addition to features recited in base claim 1 (see rationales discussed above), Zelig also discloses wherein each node in the plurality of nodes (Fig. 1) comprises a Provider Edge node (24); and wherein for unicast communications (31) each Provider Edge node in the plurality of nodes is coupled to communicate directly with each other Provider Edge node in the plurality of nodes (see *Fig. 1 for connection details and Fig. 2 for details of virtual bridge 24 and paragraphs [0049]-[0050] for description of the interface 30 and point-to-point connections 31*).

Regarding **claim 15**, in addition to features recited in base claim 1 (see rationales discussed above), Zelig also disclose wherein the centralized node is one node in the plurality of nodes (see Fig. 1).

Regarding **claim 16**, in addition to features recited in base claim 1 (see rationales discussed above), Zelig also discloses wherein the plurality of nodes comprises more than one group of nodes (Fig. 1); wherein the step of constructing a second traffic configuration along the network comprises constructing the second traffic configuration for a first group of nodes (G1) in the more than one group of nodes (see paragraph [0056]); and wherein the centralized node is further programmed to perform a step of constructing a different respective (G2) second traffic configuration along the network for each group in the more than one group of nodes (see paragraph [0057]).

Regarding **claim 17**, in addition to features recited in base claim 1 (see rationales discussed above), Zelig also disclose wherein the step of constructing a different respective second traffic configuration comprises, for each different respective second traffic configuration: constructing a Steiner tree (spanning tree) along the network (paragraph [0049]); and supplementing the Steiner tree along the network by constructing one or more source based trees (G1 and G2) along the network (see paragraphs [0056]-[0057]).

Regarding **claim 18**, in accordance with Zelig reference entirety, Zelig discloses a method of operating a computer network along which network traffic flows between a plurality of nodes in a form of packets, comprising:

communicating unicast packet traffic along the network according to a first traffic

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configuration along the network; and

communicating multicast packet traffic along the network according to a second traffic configuration along the network, wherein the second traffic configuration differs from the first traffic configuration.

Regarding **claim 19**, in addition to features recited in base claim 18 (see rationales discussed above), Zelig also discloses constructing the second traffic configuration by the steps of: constructing a Steiner tree along the network; and supplementing the Steiner tree along the network by constructing one or more source based trees (G1 and G2) along the network (*paragraphs [0056]-0057*).

Regarding **claim 20**, in accordance with Zelig reference entirety, Zelig shows a node (Fig. 2) for coupling into a computer network along which network traffic flows between a plurality of nodes in a form of packets (Fig. 1), wherein the plurality of nodes includes the node for coupling, the node for coupling programmed to perform the steps of:

communicating unicast packet traffic along the network according to a first traffic configuration along the network (*paragraph [0054]*); and

communicating multicast packet traffic along the network according to a second traffic configuration along the network, wherein the second traffic configuration differs from the first traffic configuration (*paragraph [0051] or paragraphs [0055]-[0066]*).

***Allowable Subject Matter***

6. Claims 2-5, 7, 9-13 and 21-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record, considered individually or in combination, fails to fairly show or suggest the claimed invention of base claim 1 and further limits with novel an unobvious limitation of *"communicating routing information (representing at least a portion of the second traffic configuration to each node in the plurality of nodes, wherein each node in the plurality of nodes routes multicast packet traffic in response to the at least a portion of the second traffic configuration,"* structurally and functionally interconnected with other limitations in a manner as recited in the dependent claims 2-5.

The prior art of record, considered individually or in combination, fails to fairly show or suggest the claimed invention of base claim 6 and further limits with novel an unobvious limitation of *"wherein the step of constructing a Steiner tree comprises optimizing a cost that is selected from a greater of a cost associated with a first Label Switched Path in the pair of Label Switched Paths and a cost associated with a second Label Switched Path in the pair of Label Switched Paths,"* structurally and functionally interconnected with other limitations in a manner as recited in the dependent claim 7.

The prior art of record, considered individually or in combination, fails to fairly show or suggest the claimed invention of base claim 8 and further limits with novel an unobvious limitation of *"wherein the table routing information comprises Steiner tree*



*entries that indicate a next hop for a received packet by associating a group to which a receiving node belongs with a destination node in the plurality of nodes; and wherein the table routing information further comprises source based tree entries that indicate a next hop for a received packet by associating a group to which a receiving node belongs and an ingress node in the plurality of nodes with a destination node in the plurality of nodes,"* structurally and functionally interconnected with other limitations in a manner as recited in the dependent claims 9-13.

The prior art of record, considered individually or in combination, fails to fairly show or suggest the claimed invention of base claim 20 and further limits with novel and unobvious limitation of *"receiving, along the network, table routing information representing at least a portion of the second traffic configuration, wherein the table routing information is responsive to at least a portion of a Steiner tree along the network,"* structurally and functionally interconnected with other limitations in a manner as recited in the dependent claims 21-22.

### **Conclusion**

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kompella (USP 7,136,374).

Oul Brahim et al (USP 7,152,115).

Yazdani et al, An MPLS Broadcast Mechanism and Its Extension for Dense-Mode Multicast Support, Springer-Verlag Berlin, pages 232-242, 2003.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank Duong whose telephone number is 571-272-3164. The examiner can normally be reached on 7:00AM-3:30PM, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D. Feild can be reached on 571-272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



**FRANK DUONG**  
**PRIMARY EXAMINER**

June 8, 2007